

SERIES: VYC30W | DESCRIPTION: DC-DC CONVERTER
FEATURES

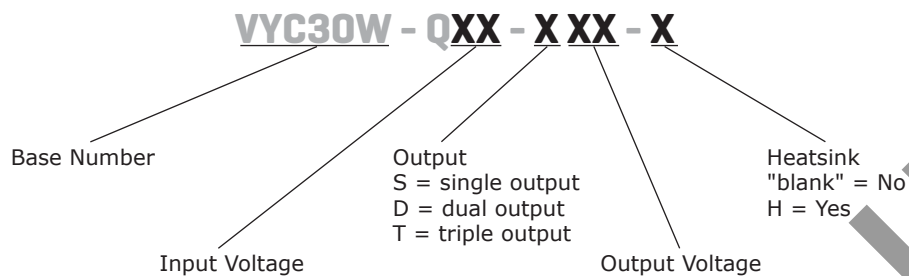
- up to 30 W output
- industry standard pinout
- 4:1 input range (9~36 V, 18~75 V)
- single, dual, and triple outputs
- 1,500 V isolation
- short circuit, over current, and over voltage protection
- wide temperature operation (-40~85°C)
- efficiency up to 88%



| MODEL | input voltage range (Vdc) | output voltage (Vdc) | output current max (A) | output power max (W) | ripple and noise ¹ max (mVp-p) | efficiency |
|-----------------|------------------------------------|----------------------------|---------------------------------|-------------------------------|--|------------|
| | | | | | | typ (%) |
| VYC30W-Q24-S5 | 9 ~ 36 | 5 | 6 | 30 | 120 | 87 |
| VYC30W-Q24-S12 | 9 ~ 36 | 12 | 2.5 | 30 | 120 | 88 |
| VYC30W-Q24-S15 | 9 ~ 36 | 15 | 2 | 30 | 120 | 87 |
| VYC30W-Q24-D5 | 9 ~ 36 | ±5 | 3 | 30 | 120 | 86 |
| VYC30W-Q24-D12 | 9 ~ 36 | ±12 | 1.25 | 30 | 120 | 88 |
| VYC30W-Q24-D15 | 9 ~ 36 | ±15 | 1 | 30 | 120 | 87 |
| VYC30W-Q24-T312 | 9 ~ 36 | 3.3 ±12 | 4 ±0.625 | 28.2 | 120 | 85 |
| VYC30W-Q24-T315 | 9 ~ 36 | 3.3 ±15 | 4 ±0.5 | 28.2 | 120 | 85 |
| VYC30W-Q24-T512 | 9 ~ 36 | 5 ±12 | 3 ±0.625 | 30 | 120 | 86 |
| VYC30W-Q24-T515 | 9 ~ 36 | 5 ±15 | 3 ±0.5 | 30 | 120 | 86 |
| VYC30W-Q48-S5 | 18 ~ 75 | 5 | 6 | 30 | 120 | 87 |
| VYC30W-Q48-S12 | 18 ~ 75 | 12 | 2.5 | 30 | 120 | 88 |
| VYC30W-Q48-S15 | 18 ~ 75 | 15 | 2 | 30 | 120 | 87 |
| VYC30W-Q48-D5 | 18 ~ 75 | ±5 | 3 | 30 | 120 | 86 |
| VYC30W-Q48-D12 | 18 ~ 75 | ±12 | 1.25 | 30 | 120 | 88 |
| VYC30W-Q48-D15 | 18 ~ 75 | ±15 | 1 | 30 | 120 | 87 |
| VYC30W-Q48-T312 | 18 ~ 75 | 3.3 ±12 | 4 ±0.625 | 28.2 | 120 | 85 |
| VYC30W-Q48-T315 | 18 ~ 75 | 3.3 ±15 | 4 ±0.5 | 28.2 | 120 | 85 |
| VYC30W-Q48-T512 | 18 ~ 75 | 5 ±12 | 3 ±0.625 | 30 | 120 | 86 |
| VYC30W-Q48-T515 | 18 ~ 75 | 5 ±15 | 3 ±0.5 | 30 | 120 | 86 |

Notes: 1. Ripple and noise are measured at 20 MHz BW

PART NUMBER KEY



INPUT

| parameter | conditions/description | min | typ | max | units |
|----------------------------|-----------------------------|------|-----|------|-------|
| operating input voltage | | 9 | 24 | 36 | Vdc |
| | | 18 | 48 | 75 | Vdc |
| start-up time | | | 10 | | ms |
| under voltage lockout | power up 24 V input | | | 9.0 | Vdc |
| | power up 48 V input | | | 17.8 | Vdc |
| | power down 24 V input | 8.0 | | | Vdc |
| | power down 48 V input | 16.0 | | | Vdc |
| Remote on/off ¹ | module off | 0 | | 1.2 | Vdc |
| | module on (or open circuit) | 3.5 | | 12 | Vdc |
| filter | PI type | | | | |

Notes: 1. The on/off pin voltage is referenced to GND

OUTPUT

| parameter | conditions/description | min | typ | max | units |
|--------------------------|--|-----|-------|------|-------|
| line regulation | single and dual output models, measured from low line to high line at full load | | ±0.2 | ±0.5 | % |
| | triple output models (main output), measured from low line to high line at full load | | | ±1 | % |
| | triple output models (auxiliary outputs), measured from low line to high line at full load | | | ±5 | % |
| load regulation | single and dual output models, measured from 10% to full load at nominal input | | ±0.5 | ±1 | % |
| | triple output models (main output), measured 10% to full load at nominal input | | | ±2 | % |
| | triple output models (auxiliary outputs), measured 10% to full load at nominal input | | | ±5 | % |
| voltage accuracy | single and dual output models, refer to recommended circuit | | ±1 | ±3 | % |
| | triple output models (main output), refer to recommended circuit | | ±2 | | % |
| | triple output models (auxiliary outputs), refer to recommended circuit | | ±5 | | % |
| transient recovery time | 25% ~ 50% ~ 25% step load charge | | 300 | 500 | µs |
| transient peak deviation | 25% rated load change | | 300 | | µs |
| cross regulation | dual output models, main output 50% load, supplemental output from 10~100% load triple output models, main output and one auxiliary output 50% load, another auxiliary output from 10~100% load | | | ±5 | % |
| adjustability | | | ±10% | | Vdc |
| switching frequency | 100% load, input voltage range | | 400 | | kHz |
| temperature coefficient | | | ±0.02 | | %/°C |

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|--------------------------|--------------------------------------|-------|-----|-----|-------|
| short circuit protection | hiccup, automatic recovery | | | | |
| over current protection | input voltage range | | 130 | | % |
| over voltage protection | single and dual output models (main) | 5 V | 6.1 | | Vdc |
| | | 12 V | 15 | | Vdc |
| | | 15 V | 18 | | Vdc |
| | triple output models (main) | 3.3 V | 3.9 | | Vdc |
| | | 5 V | 6.2 | | Vdc |

SAFETY AND COMPLIANCE

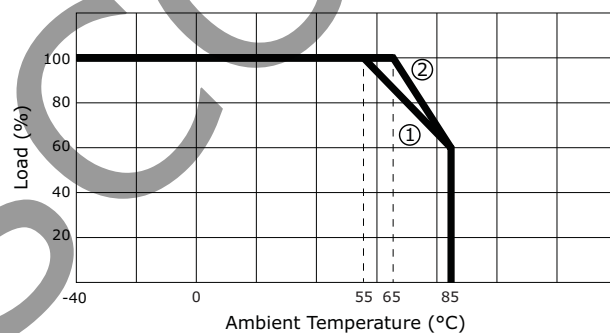
| parameter | conditions/description | min | typ | max | units |
|-----------------------|----------------------------------|-----------|-------|-----|-------|
| isolation voltage | tested for 1 minute at 1 mA max. | 1,500 | | | Vdc |
| isolation resistance | at 500 Vdc | 1,000 | | | MΩ |
| isolation capacitance | 100 kHz / 0.1 V | | 2,000 | | pF |
| RoHS compliant | yes | | | | |
| MTBF | M1L-HDBK-217F | 1,000,000 | | | hours |

ENVIRONMENTAL

| parameter | conditions/description | min | typ | max | units |
|----------------------------|------------------------|-----|-----|-----|-------|
| case operating temperature | | -40 | | 85 | °C |
| maximum case temperature | during operation | | | 105 | °C |
| storage temperature | | -40 | | 125 | °C |
| storage humidity | non-condensing | 5 | | 95 | % |

DERATING CURVES

output power vs. ambient temperature



- ① without heat sink
 ② with heatsink
 (Natural Convection)

MECHANICAL

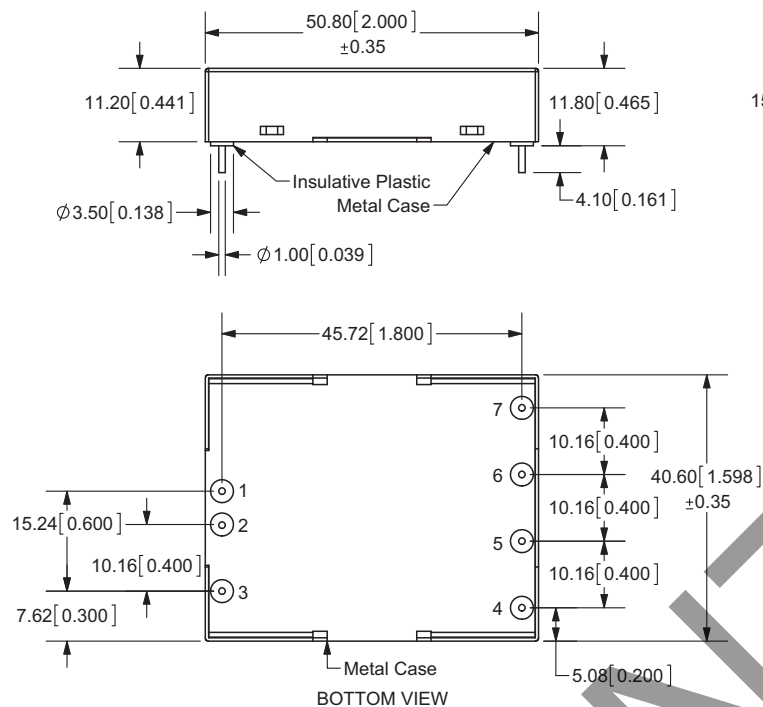
| parameter | conditions/description | min | typ | max | units |
|---------------|--|-----|-----|-----|-------|
| dimensions | 2.0 x 1.6 x 0.44 inch (50.8 x 40.6 x 11.2mm) | | | | |
| case material | nickel-coated copper (six-sided) | | | | |
| weight | | | 50 | | g |
| | with heat sink | | 70 | | g |

MECHANICAL DRAWING

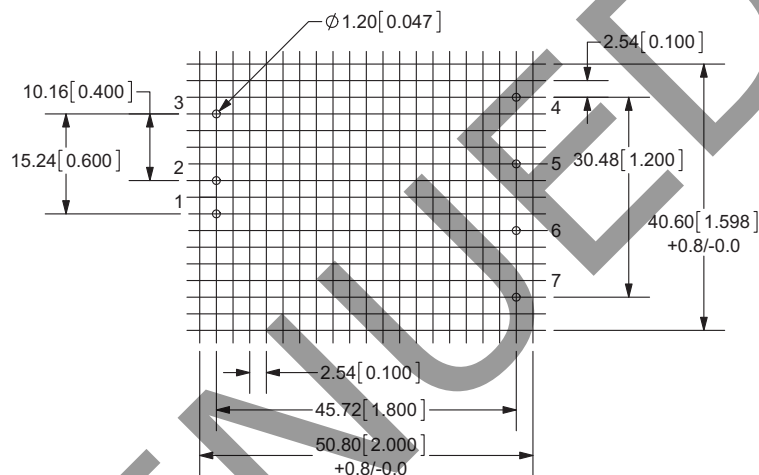
unit: mm [inch]

General tolerances: ±0.25mm [±0.010 inch]

Pin section tolerances: ±0.10mm [±0.004 inch]



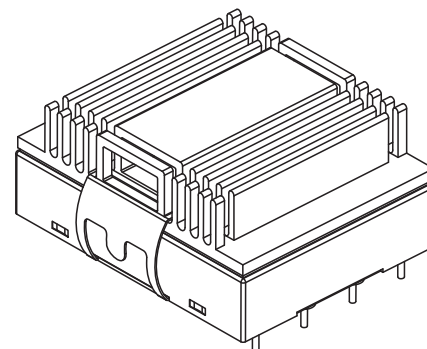
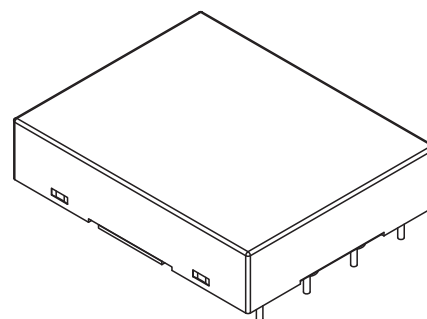
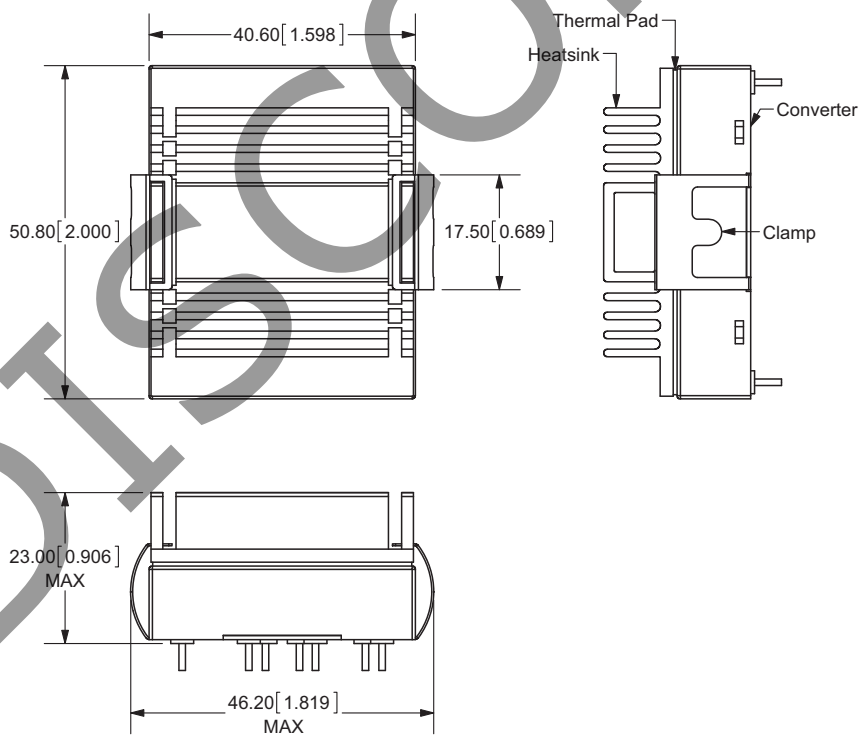
RECOMMENDED FOOTPRINT (TOP VIEW)



| PIN CONNECTIONS | | | |
|-----------------|--------|--------|--------|
| Pin | Single | Dual | Triple |
| 1 | Vin | Vin | Vin |
| 2 | GND | GND | GND |
| 3 | On/Off | On/Off | On/Off |
| 4 | Trim | Trim | -Vo2 |
| 5 | 0V | -Vo | 0V |
| 6 | +Vo | 0V | +Vo1 |
| 7 | No Pin | +Vo | +Vo2 |

unit: mm [inch]

tolerance: ±0.5mm [±0.020 inch]



APPLICATION NOTES

1. EMI & EMS recommended external circuit

| | Single output, 18 ~ 75 Vin | Single output, 9 ~ 36 Vin | Dual output, 18 ~ 75 Vin | Dual output, 9 ~ 36 Vin | Triple output, 18 ~ 75 Vin | Triple output, 9 ~ 36 Vin |
|-----|--|--|--|--|--|--|
| TVS | SMCJ90A,1500W(Bringtking) | SMCJ48A,1500W(Bringtking) | SMCJ90A,1500W(Bringtking) | SMCJ48A,1500W(Bringtking) | SMCJ48A,1500W(Bringtking) | SMCJ48A,1500W(Bringtking) |
| LCM | 232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme) | 232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme) | 232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme) | 232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme) | 232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme) | 232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme) |
| C0 | 680µF/1,000V (CapXon) | 1,000µF/50V(CapXon) | 680µF/100V (CapXon) | 1000µF/50V(CapXon) | 680µF/50V(CapXon) | 1,000µF/100V (CapXon) |
| C1 | 105K/100V 1210(TDK) | 105K/100V 1210(TDK) | 105K/100V 1210(TDK) | 105K/100V 1210(TDK) | 105K/100V 1210(TDK) | 105K/100V 1210(TDK) |
| C2 | 225K/100V 1210(TDK) | 225K/100V 1210(TDK) | 225K/100V 1210(TDK) | 225K/100V 1210(TDK) | 225K/100V 1210(TDK) | 225K/100V 1210(TDK) |
| C3 | No component | No component | 102K/2,000V 1206 (TDK) | 102K/2,000V 1200 (TDK) | No component | No component |
| C4 | No component | No component | 102K/2,000V 1206 (TDK) | 102K/2,000V 1206 (TDK) | 102K/2,000V 1206 (TDK) | 102K/2,000V 1206 (TDK) |

Figure 1 (Single output)

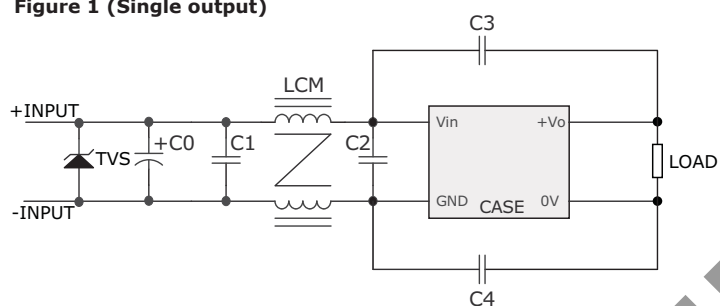


Figure 2 (Dual output)

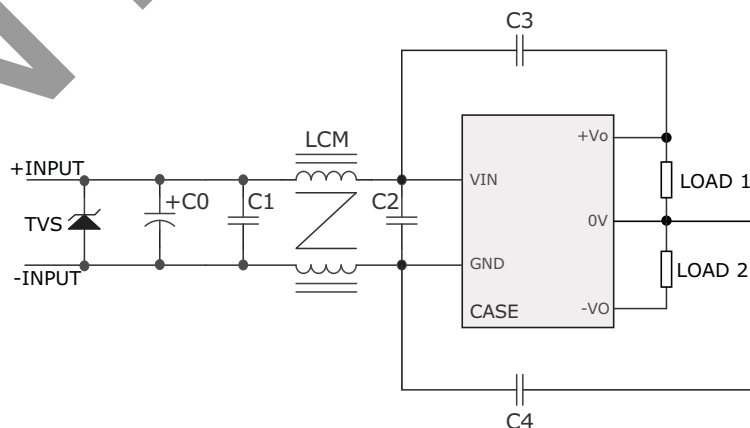
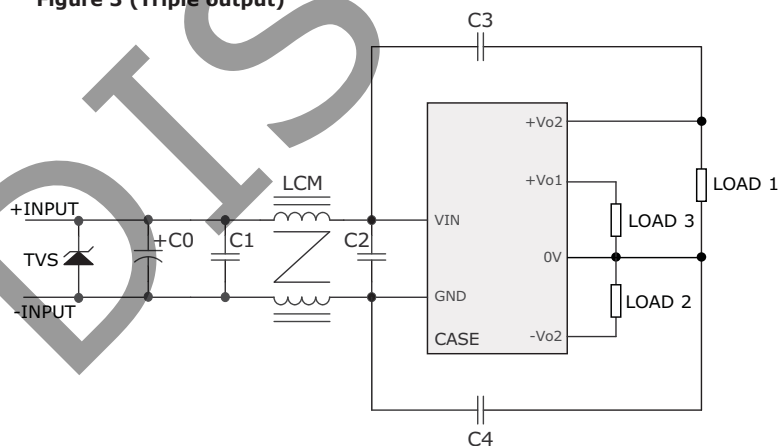


Figure 3 (Triple output)



REVISION HISTORY

| rev. | description | date |
|------|-----------------------------|------------|
| 1.0 | initial release | 08/23/2011 |
| 1.01 | updated spec | 10/07/2011 |
| 1.02 | added two dual 5 V models | 11/15/2011 |
| 1.03 | V-Infinity branding removed | 09/06/2012 |

The revision history provided is for informational purposes only and is believed to be accurate.



Headquarters
20050 SW 112th Ave.
Tualatin, OR 97062
800.275.4899

Fax 503.612.2383
cui.com
techsupport@cui.com

CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

CUI reserves the right to make changes to the product at any time without notice. Information provided by CUI is believed to be accurate and reliable. However, no responsibility is assumed by CUI for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.